

CLAIMS

What is claimed is:

- 5 1. An integrated self-cooling plant support module for incorporation into a fuel cell system including a fuel cell assembly, said module being disposed in an enclosure having an air distribution system and being adapted to draw exterior air into the interior of said enclosure and to discharge air to the fuel cell assembly, said integrated module comprising:
- 10 a) an inlet port in a wall of said enclosure;
- b) a motor mounted in said enclosure adjacent said inlet port;
- c) a blower mechanically connected to and driven by said motor and being in communication with said air distribution system;
- d) an electronic control module mounted adjacent said motor;
- 15 e) a first shroud surrounding said electronic control module and being open at one end to said interior of said enclosure; and
- f) a second shroud surrounding said motor and being connected at one end to said first shroud and being open at the other end to said blower.
- 20 2. An integrated module in accordance with Claim 1 further comprising an air filter disposed in communication with said wall inlet port.
3. An integrated module in accordance with Claim 1 wherein said electronic control module is provided with a heat sink.
- 25 4. An integrated module in accordance with Claim 1 wherein said exterior air is at ambient temperature and said air discharged to said fuel cell assembly is at a higher temperature.

5. A method for cooling elements in a fuel cell plant support module and for heating fuel cell process air for discharge to a fuel cell assembly, comprising the steps of:

- a) providing an inlet port in a wall of said enclosure;
- 5 b) providing a motor mounted in said enclosure adjacent said inlet port;
- c) providing a blower mechanically connected to and driven by said motor and being in communication with an air distribution system of said module;
- d) providing an electronic control module mounted adjacent said motor;
- e) providing a first shroud surrounding said electronic control module and
10 being open at one end to said interior of said enclosure;
- f) providing a second shroud surrounding said motor and being connected at one end to said first shroud and being open at the other end to said blower; and
- g) operating said motor and said blower to draw exterior air into the
15 interior of said enclosure, through said first shroud, through said second shroud, and through said blower into said fuel cell assembly.

6. A solid-oxide fuel cell system comprising an integrated self-cooling plant support module, said module being disposed in an enclosure having an air
20 distribution system, said module being adapted to draw exterior air into the interior of said enclosure and to discharge air to said fuel cell assembly, said integrated module including

- an inlet port in a wall of said enclosure,
- a motor mounted in said enclosure adjacent said inlet port,
- 25 a blower mechanically connected to and driven by said motor and being in communication with said air distribution system,
- an electronic control module mounted adjacent said motor,
- a first shroud surrounding said electronic control module and being open at one end to said interior of said enclosure, and
- 30 a second shroud surrounding said motor and being connected at one end to said first shroud and being open at the other end to said blower.